LOGISTICS IMPLICATIONS OF MANEUVER WARFARE

VOLUME 2: NATO DEFENSE CONCEPTS AND CAPABILITIES

Report IR702R2

September 1988

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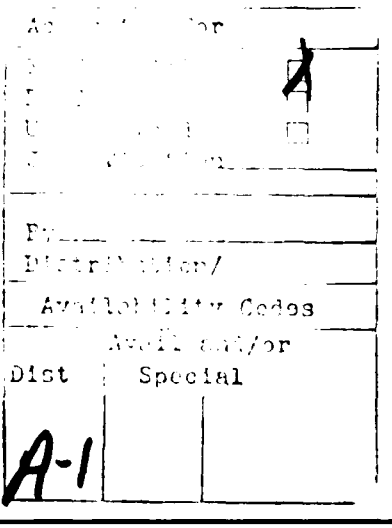
PREFACE

As part of its FY87 independent research and development program, the Logistics Management Institute (LMI) examined the logistics implications of a new maneuver-oriented operational concept – AirLand Battle – being adopted by the U.S. Army.

LMI undertook this study for three reasons. First, even though more than 5 years have passed since AirLand Battle was promulgated as formal Army doctrine, misperceptions and uncertainties about its execution still exist. Second, neither the Army nor the Defense community has yet developed a good understanding of the implications and ramifications of AirLand Battle. Third, and most important, the combat service support requirements, which largely determine the extent to which AirLand Battle doctrine can be executed, are not well defined or understood.

The results of this study are presented in six volumes. Volume 1 sets the stage for the examination of AirLand Battle doctrine and lays out the focus and scope of the study; this volume, Volume 2, reviews NATO's defense posture, including operational concepts and capabilities; Volume 3 describes the military command structure, operational concepts, and capabilities of the Soviet Union; Volume 4 summarizes the various arms control negotiations that have taken place between East and West to solve NATO's security problem peacefully; Volume 5 illustrates the need for NATO to shift toward a maneuver-oriented defense concept, analogous to AirLand Battle doctrine, if it is to maintain a credible conventional defense; and Volume 6 details the specific logistics improvements that are required to support maneuver defense in a NATO environment. The material in these volumes is interrelated so the reader is cautioned not to interpret individual volumes as stand-alone documents.



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LOGISTICS IMPLICATIONS OF MANEUVER WARFARE

VOLUME 2: NATO DEFENSE CONCEPTS AND CAPABILITIES

This volume provides an overview of NATO's defense posture, command structure, and the operational concepts and capabilities of its land forces in the Central Region. In so doing, it establishes a foundation for further discussion of maneuver warfare concepts in a NATO environment.

DEFENSE POSTURE

NATO is a voluntary alliance of sovereign nations seeking to preserve peace and international security and to promote stability and well-being in the North Atlantic area. The alliance was formed in 1949 to contain Soviet expansion in Europe. Notwithstanding the increasing diversity of interests and priorities of its member nations, containment or more specifically, the attainment of "a just and lasting peaceful order in Europe," remains NATO's ultimate goal. In contrast, the Soviet Union has traditionally viewed NATO as an aggressive organization, with any attack by the United States most likely to come through NATO.[1] Hence, its aim has been to maintain superior military forces in its Western Military Districts and Warsaw Pact countries both to preempt any attack from the West and to foster disintegration of NATO by intimidation and other means, including military aggression if necessary. Soviet military strategy is based on deterrence by *denial* rather than deterrence by *retaliation,* which is a Western notion. The resulting trigger situation in Europe, in turn, is the basic reason for Western concerns about the possibility of war as a result of Soviet misreadings of events or miscalculations of NATO's resolve and preparedness. Thus, NATO needs a credible military capability to deter aggression as part of its containment policy, and to fight a war if deterrence fails. NATO's defense policy, however, prohibits military action to preempt an attack by the aggressor; thus, the initiative would lie with the Soviet Union until its forces cross the border between the two blocs. Even in the event of an attack,

[1] A highly readable collection of papers on this topic can be found in Graham D. Vernon (ed.), *Soviet Perceptions of War and Peace* (Washington, D.C.: National Defense University Press, 1981).

NATO's defense policy is to maintain the territorial integrity of the North Atlantic area, not to gain territory.

NATO's strategy is based on *Forward Defense* (adopted in 1963) and *Flexible Response* (adopted in 1967). Forward Defense is a strategy adopted at the insistence of the Federal Republic of Germany (FRG), which objected to the NATO strategy of the 1950s that called for yielding some territory to the aggressor without battle. The reason for these objections are straightforward: 30 percent of its population and 25 percent of its industrial capacity are located within 100 km of the inner-German border. In addition, Forward Defense reduces the front line, thus permitting a slightly higher force density with the same forces than further back; it takes advantage of available favorable terrain features; it maximizes operational depth, which is already limited in the FRG; and, by stalling or delaying the enemy's advance as far forward as possible, it maximizes warning time and preparation time for mobilization and reinforcements. In concrete terms, Forward Defense means that NATO's General Defense Plan for the Central Region concentrates available ground forces at D-day (the day hostilities commence) in a narrow band along the inner-German and Czechoslovakian borders, with a tactical depth of 30 to 50 km.

NATO's strategy of Flexible Response seeks to achieve deterrence through a credible warfighting capability based on a balanced mix of conventional, theater nuclear, and strategic nuclear weapons, permitting a flexible range of responses to any military aggression. Those responses are (1) direct defense at a level deemed appropriate to defeating the attack, thus placing the burden of decision to escalate or terminate the conflict on the aggressor; (2) deliberate escalation if direct defense is not effective, with first use of theater nuclear weapons planned before the cohesiveness of NATO's defense is lost; and (3) general strategic nuclear response. The credibility and effectiveness of that strategy rest on two key points: NATO's capabilities at each rung of the escalation ladder from conventional through strategic nuclear and the political resolve and cohesion of the member states.

At the conventional level, NATO has traditionally relied on the following assumptions to justify its limited defense posture: superior quality of forces, both in terms of materiel and personnel; adequate strategic and tactical warning to prepare for the defense through mobilization of reserves and reinforcements from overseas; and the inherent advantage of the defense over the offense. However, the ongoing modernization and dramatic growth in combat power of Warsaw Pact forces since

1969 has widened the gap in conventional capabilities to such extent that NATO most likely would have to resort to "early first use" of nuclear weapons to prevent its defense from collapsing. But even that alternative has lost much of its credibility in the intervening years since the Soviets reached rough parity with the United States at the strategic nuclear level. In recent years, strategists and pragmatists alike have urged NATO to abstain from unrealistic plans for first use, to retain theater nuclear weapons only to deter Warsaw Pact first use, and to improve its conventional defense capabilities. Hence, NATO's Conventional Defense Improvement (CDI) initiative [not to be confused with the U.S. CDI (Conventional Defense Initiative) as a counterpart to its Strategic Defense Initiative and Air Defense Initiative] in 1985 was a much-needed and welcome step, but the prospects for improvements appear to be limited for a number of reasons.

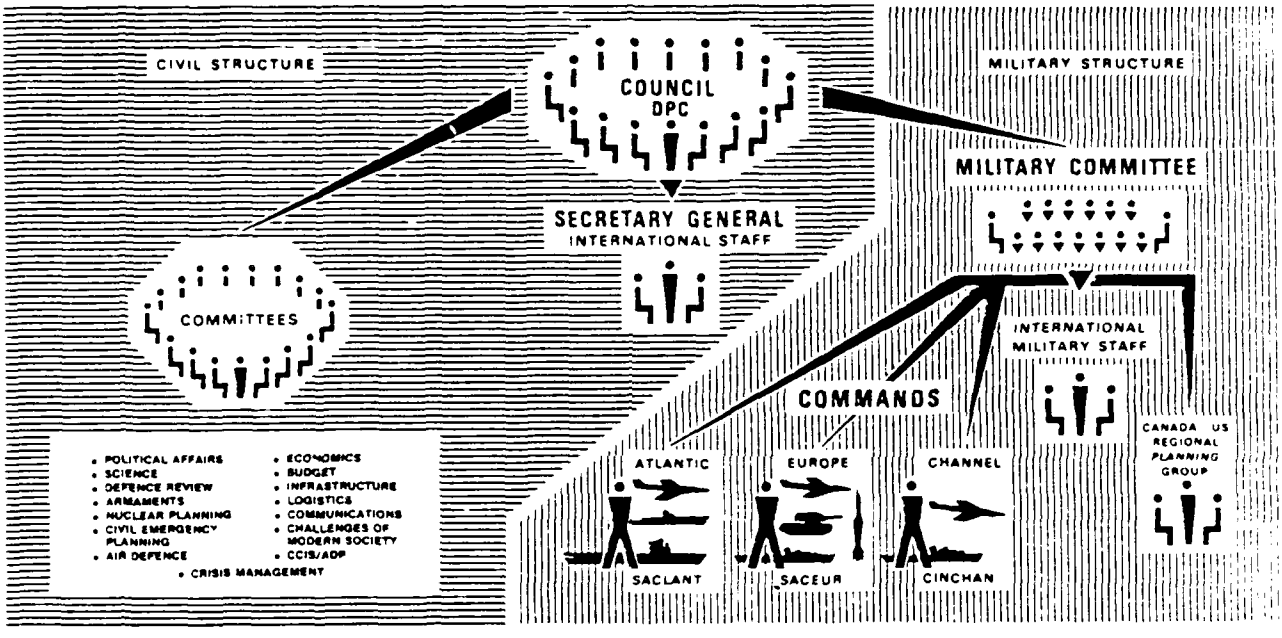
For one, defense budgets in real terms are declining in most NATO nations. Another is the perception of European defense officials of walking a tightrope between deterrence and defense, between defense capability and provocation of a Soviet attack, and between fighting a war in Europe and remaining coupled to the extended deterrence offered by U.S. strategic nuclear weapons – perceptions that tend to limit the conventional capabilities that the European NATO members are prepared to field. A third, and the most fundamental, reason is that NATO is not a supranational body. It has neither the authority nor the means to compel force goals, prescribe a common strategy and doctrine, or enforce force plans.

The CDI initiative is a multifaceted program designed to circumvent or alleviate the problems inherent to NATO's traditional force planning and armaments planning processes. Those processes and the NATO organizations that are involved will be reviewed first, before we address the CDI initiative in some detail.

ORGANIZATION

The highest authority in NATO is the North Atlantic Council, established as a forum for political consultation, coordination, and decision making to pursue the Treaty's basic objective: the preservation of peace and international security in the North Atlantic area. The Council meets at various levels: in permanent session (several times a week or, in emergencies, at 2 hours notice), where each member nation is represented by its Permanent Representative of ambassodorial rank; in biannual ministerial meetings, with nations represented by Foreign Ministers; and

occasionally in summit meetings of Heads of State or Government. At all levels, Council meetings are chaired by the NATO Secretary General and decisions can be taken only by unanimous consent. Council decisions thus reflect the collective will of member Governments and can only be reversed by the Council itself. The Council is supported by a large number of subsidiary committees that prepare the work of the Council or implement its decisions. Those committees, both civil and military, act for and under the authority of the Council (see Figure 1).



Note: SACLANT: Supreme Allied Commander Atlantic; SACEUR: Supreme Allied Commander Europe; CINCHAN: Commander-in-Chief Channel; CCIS/ADP: Command, Control and Information Systems/Automatic Data Processing Committee.

FIG. 1. NATO CIVIL AND MILITARY STRUCTURE

The top-level committee concerned with defense matters is the Defense Planning Committee (DPC). Within its specific area of responsibility, this committee has the same functions and authority as the Council. Like the Council, it meets at least once a week at ambassadorial level and assembles twice a year in ministerial session, with nations represented by their Defense Ministers. Meetings are chaired by the NATO Secretary General. Unlike the Council, the DPC consists only of representatives of those nations participating in the NATO integrated military structure; i.e., of the 16 members nations, two are currently excluded from the DPC: France (which withdrew from the integrated military structure in 1966) and Iceland (which has no armed forces); Spain, which became the 16th NATO member in 1982

but has not fully acceded to the integrated military structure, is represented on the DPC.

Among the 16 "principal committees" of the North Atlantic Council (i.e., standing committees reporting directly to the Council or DPC), the Defense Review Committee (DRC) is key to force planning while the Conference of National Armaments Directors (CNAD) has the lead on armaments planning.

The DRC, consisting of national representatives of all NATO nations, is chaired by the Assistant Secretary General for Defense Planning and Policy, one of five divisions of the International Staff (the other four, each headed by an Assistant Secretary General, are: Political; Defense Support; Infrastructure, Logistics, and Council Operations; and Scientific Affairs). Its specific role and responsibilities in the force planning process are described in the next section.

The CNAD is the most senior advisory group to the Council/DPC on production logistics, including all areas related to research, development, production, and procurement of defense equipment for NATO member nations. Its permanent chair is the Assistant Secretary General for Defense Support; its members are senior national officials who are responsible for weapons system acquisition in their respective countries (e.g., the principal United States delegate currently is the Under Secretary of Defense for Acquisition; in recent years it was the Deputy Secretary of Defense or the Director of Defense Research and Engineering). Plenary meetings are held twice a year and those meetings include the chairman of the Military Committee. The day-to-day management function is performed by a subsidiary body, National Armaments Directors Representatives, who are members of the national delegations to NATO. The CNAD was created in 1966 as a successor to the Armaments Committee that was disbanded in the realization that a more flexible approach was needed to achieve armaments cooperation, i.e., with consideration of political and economic factors and not only military requirements.

Those three bodies, DPC, DRC, and CNAD, are the key organizations in force planning and armaments planning on the civil side of NATO. Their counterparts in the military structure are the "NATO Military Authorities," the collective term for the Military Committee, International Military Staff, and Major NATO Commanders.

The Military Committee, as the highest military authority in NATO, has the peacetime responsibility of advising the Council/DPC on military matters pertaining to the common defense of the NATO area. It is also the body to which the Major NATO Commanders and the Canada-U.S. Regional Planning Group are responsible in peacetime. It is composed of the Chiefs of Staff of the same member nations represented on the DPC (France is represented by a nonvoting military liaison mission and Iceland by a civilian representative); e.g., the U.S. representative is the Chairman, Joint Chiefs of Staff. It meets twice a year or when necessary; although to function on a continuing basis, it meets in permanent session with each national Chief of Staff represented by a permanent national Military Representative to the Military Committee. The Chairman of the Military Committee, elected by the Chiefs of Staff for a 2-year term, presides over both the senior and permanent sessions.

The International Military Staff, headed by a Director of three-star rank, supports the Military Committee by preparing plans, studies, and recommendations, and acts as its executive agent by ensuring policies and decisions are implemented. It is organized into six divisions, each headed by a general officer: Intelligence; Plans and Policy; Operations; Management and Logistics; Command, Control, and Communications; and Armaments Standardization and Interoperability. In addition to this staff, the Military Committee is also supported by some 17 NATO military agencies that fall under its authority. Among those are two that will be referred to later in this volume. One is the Military Agency for Standardization, which is chaired by the Assistant Director of Armaments Standardization and Interoperability (International Military Staff) and composed of a Coordinating Committee and three Service Boards that oversee the work of subordinate working groups on standardization of doctrine, operating procedures, administration, and materiel. Collectively, they are responsible for approximately 900 NATO standardization agreements and 120 Allied Publications in various stages of ratification, promulgation, or draft form. The second agency is the Senior NATO Logisticians Conference which is a unique body in that it is a joint civil/military committee that reports both to the Council/DPC and to the Military Committee – a change that was introduced in 1979. (It had been originally created as a civil committee in 1976.) The Conference is the senior advisory body in NATO on consumer logistics. Its task is to assess NATO's logistics posture and to seek ways to enhance wartime capability and effectiveness by better use of logistics resources and greater cooperation within

the alliance. It is chaired jointly by the Assistant Secretary General for Infrastructure, Logistics, and Council Operations and the Deputy Chairman of the Military Committee. Its membership consists of senior civil and military national representatives responsible for logistics (Iceland and Luxembourg are the only countries not represented) and representatives of the International Staff, International Military Staff, Major NATO Commanders, Military Agency for Standardization, and the NATO Maintenance and Supply Agency. The Conference meets twice a year, while staff work is performed jointly by International Staff and International Military Staff.

The Major NATO Commanders – Supreme Allied Commander Europe (SACEUR), Supreme Allied Commander Atlantic, and Allied Commander-in-Chief Channel – are responsible for the development of defense plans for their respective areas, the determination of force requirements, and the deployment of forces under their command. Allied Command Europe (ACE) covers the entire land area of NATO Europe (Norway to Turkey) except the UK and Portugal, whose defense does not fall under a single major NATO command. In peacetime, SACEUR's main functions are to prepare and finalize defense plans for his area; to be an advocate of military preparedness and combat readiness of forces that will be assigned to him in wartime; and to make recommendations to the Military Committee about the training, equipping, and support of those forces. His peacetime authority, as is that of his subordinate NATO commanders, is extremely limited because the military forces committed by member nations to NATO's defense in peacetime remain under national command and control.

FORCE PLANNING PROCESS

NATO's standard force planning process today is essentially unchanged since the 1965 introduction of a 5-year rolling force plan similar to the model adopted by the United States in the early 1960s. It consists of two phases: the first phase is on a 2-year cycle and results in NATO Force Goals that represent the planning target 6 years ahead; the second phase is the annual defense review and results in the NATO Five Year Force Plan.

In the first phase, the DPC examines the "military appreciation" prepared by the Military Committee and the politico-economic assessment prepared by the DRC, and issues guidance to the NATO Military Authorities for the preparation of force

proposals for the relevant planning period (the so-called "Ministerial Guidance"). In response to that guidance, the Major NATO Commanders develop force proposals that reflect their assessment of what each nation should contribute to NATO's force requirements in their respective command areas. These force proposals are reviewed by the Military Committee and forwarded to the DRC with a justification and risk assessment. The DRC then conducts a detailed examination of the force proposals to determine whether they are indeed compatible with the Ministerial Guidance and whether they incorporate a "realistic challenge" for each member nation beyond its current defense plans. The DRC reports the results of its examination to the DPC, including any adjustments to the force proposals it deems necessary for economic or other reasons, and the associated risks as assessed by the Military Committee. Based on those reports, the DPC approves a set of force proposals as the NATO Force Goals that nations are to use as the basis for their national force plans. New goals are promulgated by the DPC every other year; additionally, a Defense Planning Questionnaire (DPQ) is issued annually to each country to facilitate the comparison of national plans to NATO goals.

In the second phase, member nations update their national force plans for the 5-year planning period in accordance with the approved goals. Information on national defense plans is transmitted to NATO headquarters in the form of DPQ replies, including justification of any discrepancies between plans and goals. The DPQ replies are analyzed by both the International Staff and NATO Military Authorities. Attempts to reconcile discrepancies through persuasion and adjudication proceed in two stages. First, in so-called "trilateral" discussions, involving International Staff, International Military Staff, and representatives of the Major NATO Commanders, the importance of any discrepancy is assessed and the nation concerned is urged to revise its force plan to eliminate any deficiencies that are judged to be significant. Second, the results of the trilaterals are reported to the DRC which, as a multilateral forum, conducts its own examination of national plans to eliminate any remaining discrepancies as far as possible. Those deliberations are frequently (but not always) effective in persuading nations to adjust their plans by exposing them to the court of NATO public opinion.

The DRC prepares a report on the extent to which national plans meet NATO Force Goals and the reasons for any deficiencies. The Military Committee prepares a similar report on the suitability of the collective national plans and the associated

military risk. Based on these reports, the DPC, at ambassadorial level, recommends a 5-year force plan that is reviewed in ministerial session and ultimately adopted as the NATO Five Year Force Plan. This plan represents a formal commitment of forces to the Alliance for the first year of the planning period and agreement to achieve the forces planned for subsequent years.

NATO's entire force planning process, as other observers have articulated,[2] fails in four respects:

- *Long-term planning is precluded.* The limited time horizon of 6 years precludes development of a long-term plan for the most effective NATO force to counter the projected threat. As a result, NATO force goals largely reflect national plans and cannot direct national plans toward a more efficient coalition force structure.

- *Force goals are not enforced and priorities are ignored.* Approximately 70 percent of NATO force goals are adopted by the individual nations and, of those, only 70 percent are actually implemented. As a result, what is implemented bears little relation to the prioritized needs of NATO as a whole. The NATO committed force meets only 50 percent of approved goals, with individual nations ranging from 35 percent to nearly 100 percent.

- *Weapons development is not linked to force planning.* The limited time horizon also precludes using force goals as guidance for cooperative weapons development programs. No procedure or process exists to ensure linkage between NATO's armaments planning system, instituted to foster cooperative weapons development, and its force planning process.

- *Operational planning is excluded.* The Major NATO Commanders control no forces in peacetime and their ability in the realm of operational planning is limited. Individual Alliance members have their own perceptions of how a war would proceed, have their own tactical doctrine, and develop their own force structure and plans accordingly. Those national prerogatives impede any attempts by Major NATO Commanders to remedy or compensate for the first three deficiencies in the force planning process.

These shortcomings essentially explain NATO's state of paralysis. The root cause is NATO's refusal to override national sovereignty and adopt centralized planning and NATO's control over decisions on national military forces and resources contributed to the common defense. The prospect of fundamental change

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[2]See James A. Thomson, *NATO's Strategic Choices: Defense Planning and Conventional Force Modernization*, RAND Paper P-7184, Santa Monica, Calif.: The RAND Corporation, Jan 1986. Reprinted in: "Power and Policy: Doctrine, the Alliance and Arms Control," Part I, *Adelphi Papers 205* (London: International Institute for Strategic Studies, Spring 1986).

in this respect is remote because of the concern that central direction (e.g., by majority vote) might undermine the very solidarity such effort was meant to promote.[3] The improvements in NATO's planning process, now underway through the CDI initiative, are not going to change this fact.[4] Thus, the key problem for NATO is how to influence national force plans without any means of either compulsion (force goals) or enforcement (force plans).

ARMAMENTS PLANNING

NATO does not have a "corporate" armaments planning process as such. Instead, a number of systems and procedures have evolved over the years that were designed to facilitate armaments cooperation among nations individually. Two of the primary systems are the NATO Armaments Planning Review (NAPR) and the Phased Armaments Programming System (PAPS). Both are under the purview of the CNAD, are of recent vintage, and are conceptually sound, but neither has lived up to expectations for reasons that are essentially similar to those alluded above: the collective refusal of NATO member nations to grant its headquarters more control as a corporate body, the resulting lack of accountability by member nations, and the frequent conflict (actual or perceived) between national interest and coalition benefit.

A brief review of these two systems follows to set the stage for assessing the potential improvements that can be expected from the CDI initiative. To explain how these systems work, some more details on the CNAD organization are presented first.

Conference of National Armaments Directors

The activities of the CNAD are focused upon two objectives: (1) The allocation of national resources for maximum productivity by fostering cooperation in armaments development and production, and (2) the promotion of voluntary exchange of R&D information on new weapons systems and weapons system requirements in

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[3]For the best exposition of this paradox, see James B. Steinberg, "Rethinking the Debate on Burden-Sharing," *Survival*, Jan/Feb 1987, pp. 56–78.

[4]For some details on CDI, see James M. Stewart, "Conventional Defense Improvements. Where Is the Alliance Going?" *NATO Review*, Apr 1985, pp. 1–7.

order to foster armaments cooperation. Its efforts to achieve those objectives are guided by the following general principles:

- Each nation is responsible for equipping its own forces, whether or not committed to NATO; even though NATO Military Authorities must be able to give their views on NATO military requirements, those views are advisory, with ultimate decisions on equipment remaining the prerogative of individual nations (both regarding quality and quantity).
- Cooperation is indispensable for nations with limited technical and economic resources, but cooperative R&D and production programs should be open to any member nation willing to contribute; as a counterpart to their contributions, participating nations should receive an equitable share of the scientific, technical, and economic benefits of a cooperative program.
- It is politically desirable that such cooperation takes place under the NATO aegis, but NATO should only support, not regulate, cooperation.
- Nations are encouraged, but cannot be required, to present their national military requirements, operational concepts, and materiel acquisition plans, as such information exchanges provide the primary means to foster cooperation.

The CNAD has organized its activities under six "Main Groups" that manage the actual work being performed by subordinate bodies constituting a total of approximately 200 working groups. The main groups consist of the three Service Armaments Groups: the Defense Research Group; Tri-Service Group on Communications-Electronic Equipment; and the NATO Industrial Advisory Group (the latter was added in 1968 to provide industrial input into the decision-making process on cooperative weapons system development). Each main group consists of national representatives of participating nations. For example, 12 nations are currently represented on the NATO Army Armaments Group (excluding Iceland, Luxembourg, Turkey, and Portugal); the principal U.S. delegate to this group is the Deputy for International Cooperation, Office of the Assistant Secretary of the Army for Research, Development, and Acquisition. The main groups operate under a specific CNAD charter; they convene semiannually to receive reports from subordinate bodies, monitor progress, and decide on program of work. In turn, subordinate groups operate under a charter from their parent group; they meet periodically to exchange information between participating nations, review and decide on draft documents prepared by subordinate working groups, and prepare recommendations to their parent groups. At the working group level, involving

national representatives of at least two and typically four to eight nations, work is focused on development of standardization documents and reaching agreements on conceptual documentation for future weapons systems.

The CNAD and National Armaments Directors Representatives also control a number of bodies known as "Cadre Groups" that deal with general issues related to armaments cooperation and standardization. They are established by the CNAD when particular problems or issues are recognized and they are terminated when they complete their assigned task, although some have a more permanent charter. To give some idea of the issues being addressed, a few of the currently active groups (approximately 40) are listed here:

- *NATO Group on Intellectual Property and International Cooperative Arrangements.* Established in 1977 to study obstacles to licensing and coproduction, it was recently revitalized to address a broader range of problems associated with multinational projects.
- *Group of National Directors for Quality Assurance.* Functioning as advisory group to the CNAD, it has four subgroups and several working groups engaged in preparing Allied Quality Assurance Publications.
- *NATO Group on Acquisition Practices.* Established in 1985 to examine national procurement regulations in an effort to make them more compatible.
- *Assemblies/Components/Spare Parts/Materials Standardization Group.* Established in 1985 in recognition that past standardization efforts focused on total systems and that much more could and should be accomplished at lower levels of system indenture to enhance interchangeability and reduce cost.
- *NATO Standardization Group.* Established in 1985 as successor to the Working Group on NATO Rationalization/Standardization/Interoperability, it is charged with developing the organizational and procedural arrangements necessary to implement the standardization policy developed by its predecessor, including a NATO Standardization Program and a database to help determine gaps and overlaps in NATO standardization activities.

In sum, the CNAD oversees a huge NATO-wide effort in the pursuit of armaments cooperation and materiel standardization.

NATO Armaments Planning Review

The NAPR, formally established in 1979, is a systematic, cyclical review process designed to identify the most important and promising opportunities to achieve standardization of defense equipment. The process entails a detailed analysis and comparison of the nations' annual plans for equipment acquisition. This review cycle proceeds in four steps.

First, by 1 November each year, nations submit equipment data sheets documenting their acquisition plans. The European nations do this collectively through the Independent European Program Group, while the United States and Canada do this separately. Each equipment item is specified on a separate data sheet following a standard format and numbering system. These inputs are consolidated by the NAPR Coordinator (a full-time position on the International Staff) into the "NATO Consolidated Defense Equipment Schedule" that is distributed by 1 January among NATO and national officials. Independently, the NATO Military Authorities conduct a review of national acquisition plans on a 2-year cycle and record their assessment of essentiality or desirability for standardization of each item of equipment. NATO terminology recognizes four levels of increasing standardization: *compatibility* (ability to function together), *interoperability* (ability to provide or receive services to/from other systems or units to operate effectively together), *interchangeability* (ability of different systems to interchange some materiel components), and *commonality* (common doctrine, procedures, and equipment). These standardization priority ratings are updated every 2 years by the Military Committee and submitted to the DPC for use by the CNAD and its supporting International Staff.

The second step entails an analysis to pick promising or high priority candidates for standardization. This selection process is carried out by the NAPR Coordinator with support from International Staff as necessary. The object is to classify the equipment acquisition program into three categories: (1) those that are sufficiently comparable, in characteristics as well as schedule, to offer opportunities for wider standardization through cooperative development or procurement of common equipment; (2) those where action is needed to ensure interoperability; and (3) those where any standardization effort would be inhibited by divergence of national plans. The NAPR Coordinator presents his recommended selection of programs to the National Armaments Directors Representatives who, after review,

present their recommendations at the CNAD Spring meeting. The CNAD ultimately decides on the list of equipment areas for further analysis by the main groups. (Some standardization efforts actually may be tasked to the Military Agency for Standardization.)

The third step entails a detailed analysis of the equipment items assigned to each of the main groups pursuant to CNAD direction – a process that is carried out by the various subpanels or working groups and is focused upon harmonizing materiel requirements and exploring opportunities for cooperation or standardization. The work is orchestrated and monitored by the main groups which have 2 years from CNAD tasking to complete the process and to determine whether or not identified opportunities for cooperation or problems requiring standardization can be translated into cooperative NATO projects.

The final step consists of feedback to the CNAD on results achieved and authorization by the CNAD to proceed with any cooperative projects that result.

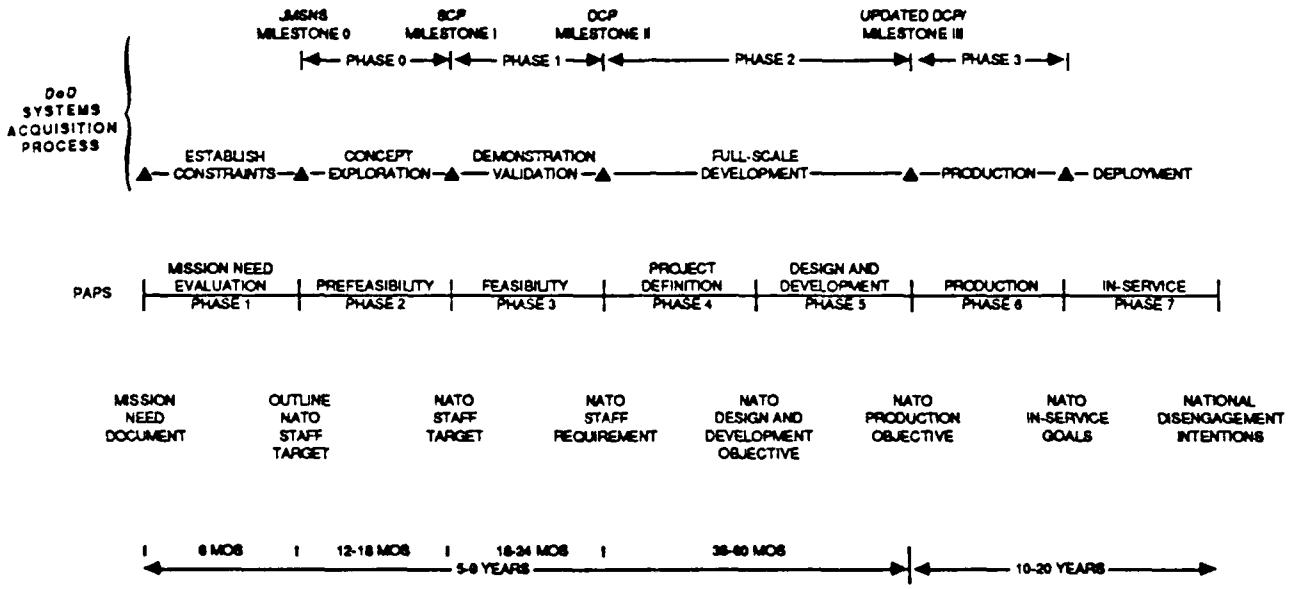
Among the reasons why the NAPR has never produced the results expected (in terms of the number of NATO cooperative weapons system R&D projects), these are probably the most important:

- *Lack of early visibility.* By the time national military operational requirements have resulted in formal acquisition programs, it is frequently too late to change them.
- *Incomplete information.* The data submission, by NATO policy, is voluntary and nations may have various reasons for not wishing to share information on their acquisition programs with all NATO member nations. Moreover, as a manual system, NAPR requires a large amount of documentation from each nation that simply may be incomplete in the rush of time or due to other higher priorities.
- *Inadequate resources.* The NAPR Coordinator has 4 months to review more than 1,000 national programs to select candidates for cooperation or standardization, an unrealistic task for one person.

Phased Armaments Programming System

PAPS (originally Periodic Armaments Planning System) was developed in 1980, and formally approved by the CNAD for implementation in 1981 as a management tool complementing NAPR. Its objective is to provide a systematic framework for promoting cooperative programs on the basis of harmonized military

requirements. Its approach consists of establishing a standard weapons system acquisition process in NATO with decision milestones and associated documentation requirements throughout the weapons system life cycle in a manner similar to that used in the U.S. Department of Defense and several other nations (see Figure 2). The introduction of PAPS provided earlier visibility of national military requirements, thus overcoming one of the weaknesses of NAPR. It also focused the activities required at all levels in NATO to make cooperation work.



Note: JMSNS: Justification for Major Systems New Start; SCP: System Concept Paper; DCP: Decision Coordinating Paper

FIG. 2. PAPS/DoD SYSTEMS ACQUISITION PROCESS STRUCTURAL RELATIONSHIP

Much of the work conducted under the aegis of the Service Armaments Groups is concerned with the first three PAPS milestones: Mission Need Document (MND), Outline NATO Staff Target (ONST), and NATO Staff Target (NST). MNDs may be forwarded by the NATO Military Authorities or by any member nation; receipt of a MND and agreement by at least two nations to evaluate the mission requirements constitutes achievement of PAPS milestone 1. A subgroup of the appropriate main group (based on the functional area involved) is tasked to provide a forum for interested nations to discuss the MND and to explore whether they can agree on a more specific requirements document, the ONST. When agreement on an ONST is reached, the draft document is reported through the parent main group to the CNAD

for review and approval, and at the same time the Militarv Committee is requested to endorse the associated MND (which may have been revised in order to reach agreement) as a "NATO Mission Need." Approval of the ONST initiates the next phase where more detailed studies are conducted by one or more working groups composed of participating nations to explore alternative concepts. This is also the phase at which the NATO Industrial Advisory Group typically enters to conduct prefeasibility studies. The end result is either an NST, specifying the most promising technical approach or approaches, or a determination that participating nations cannot reach agreement. Up to this point the discussions in working groups are essentially open-ended, with any member nation able to participate without specific commitment. The transition to the next phase after the NST, however, normally requires participating nations to agree on specific terms of reference for the cooperative effort or the signing of a Memorandum of Understanding. After the subsequent milestone, NATO Staff Requirement, which specifies the best technical approach, the cooperative activity normally becomes a separate "NATO Project," with a specific management organization and project steering committee to bring the project to completion, and always involves a detailed Memorandum of Understanding among participating nations.

The introduction of PAPS has undoubtedly facilitated armaments cooperation and has contributed to an increase in cooperative efforts. The process was further strengthened in 1984 with more formal reporting procedures to monitor progress in meeting materiel requirements through cooperation. Yet, PAPS is not an enforcing mechanism: the extent of cooperation in weapons system development and production is entirely up to the nations involved. From a cursory review of activities by the three Armaments Groups, most activities stop with the ONST, some get as far as an NST, and only a few become actual NATO projects with hardware development. In other words, PAPS so far has not resolved NATO's problem of duplication in R&D efforts and expenditures in weapons system development and high-cost/short-production runs in weapons system production.

CONVENTIONAL DEFENSE IMPROVEMENTS

At various times, NATO has attempted to overcome the inherent limitations of the force planning and armaments planning processes through special long-term planning efforts or by adopting a special, multifaceted initiative or program. The CDI initiative is the most recent example of such a program. The following brief

review describes the main thrust of that initiative and then indicates what can be realistically expected, based on "lessons learned" from other recent initiatives.

Long-Term Defense Program

The Long-Term Defense Program (LTDP) was a U.S. initiative, first proposed by President Carter at the NATO Summit Meeting in London, May 1977, to overcome the limitations of NATO's force planning process and to focus national defense programs on identified Alliance-wide military deficiencies. This initiative was developed into a separate action program, outside the regular force planning process; it was approved by the DPC and endorsed at the next Summit Meeting in Washington, D.C., May 1978. The program consisted of a broad range of measures, some aimed at procedural improvements while others called for investments in materiel, training, and logistics or development of new weapons systems. The measures were divided into 10 select areas: readiness, reinforcement, reserve mobilization, maritime posture, air defense, communications/command/control, electronic warfare, rationalization/standardization/interoperability, consumer logistics, and theater nuclear forces. The program also called for detailed reporting procedures to monitor implementation. The top-level support that the program received from the Heads of State or Government ensured a quick start by circumventing bureaucratic obstacles. The presence of a vocal advocate for the program (Robert Komer, the originator of the program, was appointed a special advisor to the U.S. Secretary of Defense to design and carry out the program), combined with the detailed monitoring machinery, ensured that accomplishments occurred. In addition, the independence from the regular force planning process ensured that the program stood out and enjoyed high visibility. Those same three aspects, however, also combined to stir up much resentment to the program within the NATO and national defense bureaucracies. Support for the program collapsed when the new U.S. Administration assumed office in January 1981 and the program, for all practical purposes, died shortly thereafter, with the improvement plans reverting to the regular force planning process. (One area, theater nuclear force improvements, was managed separately from LTDP and remained as a separate action program.) Although the program had some significant results, especially in the logistics area, its duration was too short to have a major impact on NATO's conventional defense posture.

Long-Term Planning Guidelines

The adoption of long-term planning guidelines (LTPGs) was a NATO initiative, endorsed by the DPC in May 1980 on a trial basis, in recognition of the limitations of the regular planning process caused by its short planning horizon. The procedure developed by the DRC consisted of several elements: the Ministerial Guidance was extended from 6 to 20 years; the Military Committee was directed to prepare a "Long-Term Military Appreciation"; and the Major NATO Commanders were tasked to develop LTPGs covering up to 20 years, in areas where NATO deficiencies dictated coordinated remedial action. The intent was to have the LTPGs focus on future modes of warfare, and identify the associated future needs for equipment capabilities force structure and operational concepts; i.e., the results from mission area analysis conducted by the Major NATO Commanders. The expectation was that the LTPGs would foster better armaments cooperation using the procedures instituted under the CNAD.

NATO documents assert that this new process eliminated most of the perceived shortcomings of the regular force planning process and strengthened the armaments planning process. However, it may be more fair to say that the LTPG process had limited results but served to focus attention on the weak linkage between force planning and armaments planning in NATO, as evidenced by the more recent initiatives described below.

Emerging Technology

The Emerging Technology (ET) initiative was a U.S. initiative, first proposed by Defense Secretary Weinberger at the May 1982 ministerial DPC meeting and presented in more detail at the December 1982 meeting. The intent of this initiative was to solicit proposals from all NATO countries for projects utilizing advanced technology to improve military capabilities and to use existing NATO organizations to select the most promising ones for further study and development as joint projects with pro-rata support from participating nations. The original idea was to appoint the DPC's Executive Working Group as coordinator; to involve both the Military Committee and the CNAD in project review, selection, and monitoring; to condition project selection on the participation by at least four European nations; and to target ET projects in the specific areas of sensor technology, real-time information processing, and improved conventional munitions. The U.S. expectation was that a

large number of small projects would result from this initiative, with maximum participation by the smaller countries to foster Alliance cohesion, but the initiative initially floundered for several reasons.

In the first place, the proposal caused much confusion because it was interpreted as being linked to several new operational concepts that were being debated within NATO at the time, including:

- *Follow-On Forces Attack (FOFA).* This concept was developed by SACEUR, starting in 1979, to improve NATO's interdiction capabilities in order to reduce the number of enemy ground forces arriving at NATO's forward defense positions to manageable proportions. FOFA was somewhat controversial in NATO at that time. Among the concerns were a possible propaganda campaign by the Soviet Union denouncing "NATO's aggressive intentions" and predictable Soviet countermeasures canceling NATO's investment in this capability. The concept ultimately received lukewarm approval by the DPC in November 1984. A CNAD Ad Hoc Working Group on FOFA has been meeting since mid-1986 to seek cooperative efforts on the needed weapons systems, including surveillance and target acquisition systems and air- and ground-launched missile systems, to engage targets from 30 to 500 km beyond the Forward Line of Own Troops, including transportation nodes to create choke points, troop formations at those choke points, and other fixed targets.

- *Counter-Air 90.* This concept was proposed by the U.S. Office of the Secretary of Defense to correct NATO's serious deficiencies in both offensive and defensive counter-air capabilities. Counter-Air 90 comprised both offensive and defensive missions, with the main emphasis on ground-launched ballistic missiles (for Warsaw Pact air base attack) and antitactical missiles (for NATO defense), but air-launched standoff missiles for air base attack were also included. The concept has not yet been endorsed by SACEUR, possibly to avoid overloading NATO's agenda; nor has it received NATO political (DPC) or military (Military Committee) support, even though NATO's deficiencies in air defense have been a recurring theme since the mid-1960s.

- *AirLand Battle.* U.S. Army's adoption of AirLand Battle doctrine caused much consternation in NATO. This was partly due to careless language in the 1982 edition of FM [Field Manual] 100-5; partly due to perceived conflicts with NATO Land Force Tactical Doctrine to which the United States is a signatory in accordance with Standardization Agreement 2868; partly due to misinterpretations suggesting conflicts with FOFA; and partly due to much confusion between AirLand Battle doctrine, AirLand Battle 2000 concept, and existing Army capabilities. Most of these problems were eliminated with the 1986 edition of FM 100-5.

Second, the proposal triggered suspicions that this was another U.S. effort to sell more weapons to Europe, offsetting the gradual improvements Europe was making in the "two-way street." Third, the proposal encountered much skepticism about the affordability and cost-effectiveness of such advanced technology applications.

As a result, the European response to this initiative was very cautious, even though NATO Heads of State at the June 1982 Summit Meeting in Bonn, Germany, agreed to a mandate for strengthening NATO's defense posture with particular emphasis on conventional forces by exploring ways to exploit "emerging technologies." One year later, during the ministerial DPC meeting of December 1983, Defense Ministers expressed their reservations about this kind of approach to adopting advanced technology without any clear understanding of the military requirements and their priorities. As a result, they insisted on the development of a "conceptual military framework" (CMF) for planning purposes before any further actions on the ET initiative, and the DPC assigned this task to the Military Committee.

While the CMF was under development, attitudes toward the ET initiative gradually changed. Factors that may have contributed to this change include (1) the active support by a new, widely respected Secretary General (Lord Carrington's appointment was announced in December 1983 and he assumed office in June 1984); (2) recognition of European nations that the deficiencies in conventional defense were as critical as SACEUR had been telling them for many years; (3) publication of numerous independent studies recommending NATO close the gap by applying available advanced technologies; and (4) the support of the revitalized Independent European Program Group (IEPG).[5]

The ET initiative, first considered dead when initially proposed, gradually evolved into a major emphasis on armaments cooperation that began to produce

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[5]One of those influential studies was the Report of the European Security Study (known as ESECS), *Strengthening Conventional Deterrence in Europe: Proposals for the 1980's* (New York: St. Martin's Press, 1983). This study was conducted by a Steering Group of 26 American and European defense experts and was sponsored by the American Academy of Arts and Sciences. The IEPG, a separate group of European NATO countries (excluding Iceland) formed in 1976 to promote European cooperation in armaments production, took on a more active political role in 1984 and coordinated the European response to Secretary Weinberger's ET proposals ("Joint European Input for Transatlantic Discussion on the Use of ET to Enhance the Conventional Defense Posture of the Alliance," 24 Jun 1985).

results (cooperative R&D projects under the aegis of the CNAD) when it was incorporated in the CDI initiative, as described below.

Conventional Defense Improvements Initiative

The CDI initiative originated with the agreement of Defense Ministers, in their December 1984 DPC meeting, that "extraordinary steps" were necessary to reduce the Alliance's dependency on "early first use." They requested the Secretary General to develop proposals for such a special effort. The package of proposals that became known as the "CDI initiative" was subsequently approved by the DPC in their May 1985 meeting, immediately after the Military Committee presented a grim assessment of NATO's defense posture – an assessment that projected a Soviet capability within 10 years to overrun NATO's defenses before NATO could retaliate with theater nuclear weapons.

The initiative is focused upon improvements in five areas: *military deficiencies*, *long-term planning*, *armaments cooperation* (including efforts that began under the ET initiative), *planning coordination*, and *infrastructure planning*. Like LTDP, it is a very broad, multifaceted program; but unlike LTDP, it is to be implemented within the regular NATO planning processes by improving them rather than creating a separate program.

In the first area, military deficiencies, the proposals identified deficiencies only in generic terms and without priorities, so, as a result, the initiative resulted in yet another exhortation of NATO nations to reexamine their national defense plans (for the 1987 – 1992 timeframe) to meet approved NATO Force Goals.

The other four areas are all related to introducing fundamental improvements in NATO's planning processes through a single key concept: the identification of NATO's long-term force requirements (roles, missions, and force composition) and priorities by the Major NATO Commanders. The notion of a CMF, originating out of European desires for some type of "roadmap" to focus ET efforts as described above, resulted in the preparation of a CMF by the Military Committee in 1985. That CMF provides a listing of NATO-wide military mission requirements (in the form of a matrix of six critical mission areas and 25 functional areas) in support of NATO's strategic objective, which it defines as (1) preventing the occupation of NATO territory by enemy forces, (2) ensuring free use of international waters by allies and friendly nations, and (3) securing NATO airspace. To achieve those objectives, it

emphasizes "Forward Defense," which still remains its most important principle. Because the missions are all interrelated and the relative importance of each varies by region, the Military Committee declined to set priorities in the CMF.

Even though it was not the type of specific guidance solicited by the DPC, the CMF was formally approved in the December 1985 DPC meeting with agreement that it would be incorporated into standard NATO planning procedures and updated as needed or reviewed on a 4-year cycle. More importantly, it was agreed that the Major NATO Commanders would develop "supporting documents" representing a more detailed CMF for the particular region under their responsibility and that those would be adopted as the basis for consultations and decision-making on such topics as national defense plans; force proposals; long-term plans for materiel, logistics, and infrastructure; and apportionment of defense budgets. SACEUR's CMF, which became available in 1986, provides a prioritized breakout of qualitative and quantitative improvements that are required for "the year 2000 and beyond." It is a very useful long-term planning document that stilled the original criticism of the Military Committee's CMF. The 1988 Force Goals, adopted in the Spring DPC Meeting of May 1988 for 1994, were the first NATO force goals based on the CMF, and thus reflected NATO military requirements rather than national defense priorities.

Armaments Cooperation

In the specific area of armaments cooperation, the CDI initiative introduced a more orderly review process of CNAD activities and projects related to future requirements in order to better identify gaps and wasteful duplications. The CNAD also articulated an "armaments cooperation improvement strategy." However, what gave armaments cooperation the biggest boost was the strong emphasis by U.S. Government representatives on the need for more cooperation and the set-aside of funds for cooperative R&D projects by the U.S. Congress. The most important actions by the United States in support of the armaments cooperation aspects of the CDI initiative were as follows.

In June 1985, the Nunn Amendment to the FY86 Defense Authorization Bill authorized $250 million for a NATO armaments cooperation program, consisting of $200 million for cooperative R&D projects and $50 million for comparative testing of European weapons systems against U.S. acquisition programs before they can enter

into production. (Even though these amounts were later reduced in the FY86 Appropriations Bill, they were increased again in the appropriations for subsequent years.) In the same month, Defense Secretary Weinberger designated Deputy Secretary Taft to chair a DoD Steering Group on armaments cooperation for purposes of developing a list of candidate projects for this program in coordination with NATO. In November, Taft addressed a special meeting of permanent representatives to the North Atlantic Council and deputy defense ministers from the IEPG countries. In that address, he emphasized the importance of better arms cooperation, offered the prospect of European participation in various U.S. programs, solicited nominations of European programs for U.S. collaboration, and suggested a final list of candidate projects be reviewed by the CNAD in February 1986. In early December, the DPC ministerial meeting resulted in unanimous agreement to seek better arms cooperations; and in mid-December, the North Atlantic Council ministerial meeting took place, with Secretary of State Shultz calling on his peers to review their commitment to strengthen NATO conventional defense through more effective arms cooperation, expressing support for Taft's suggestion to proceed with selected projects under CNAD coordination, and requesting the CNAD to submit a report for the April 1986 Council meeting at the deputy defense minister level.

The special meeting of the CNAD in February 1986 resulted in quick agreement on six projects; six more were added by September. For FY87, Congress appropriated $185 million to continue the U.S. share of this effort, $145 million for R&D and $40 million for side-by-side testing. By early 1987, the list of NATO cooperative R&D projects had grown to 16, while a total of 49 systems were covered under the NATO Comparative Test Program. For FY88 and FY89, $200 million has been authorized, though appropriated funds may vary. The total U.S. investment in NATO Cooperative R&D from FY86 through FY92 has been projected at $2.1 billion.

This U.S. emphasis on armaments cooperation, especially within NATO, has been continued by Defense Secretary Carlucci. For example, the *Defense Guidance for FY90–94*, issued 29 March 1988, explicitly recognized the need, both for the United States and its allies, for "pursuing every available opportunity for cooperation" and set a long-term goal of 25 percent of DoD's R&D budget for "cooperative R&D projects involving equitable sharing of development costs and capabilities with U.S. allies."

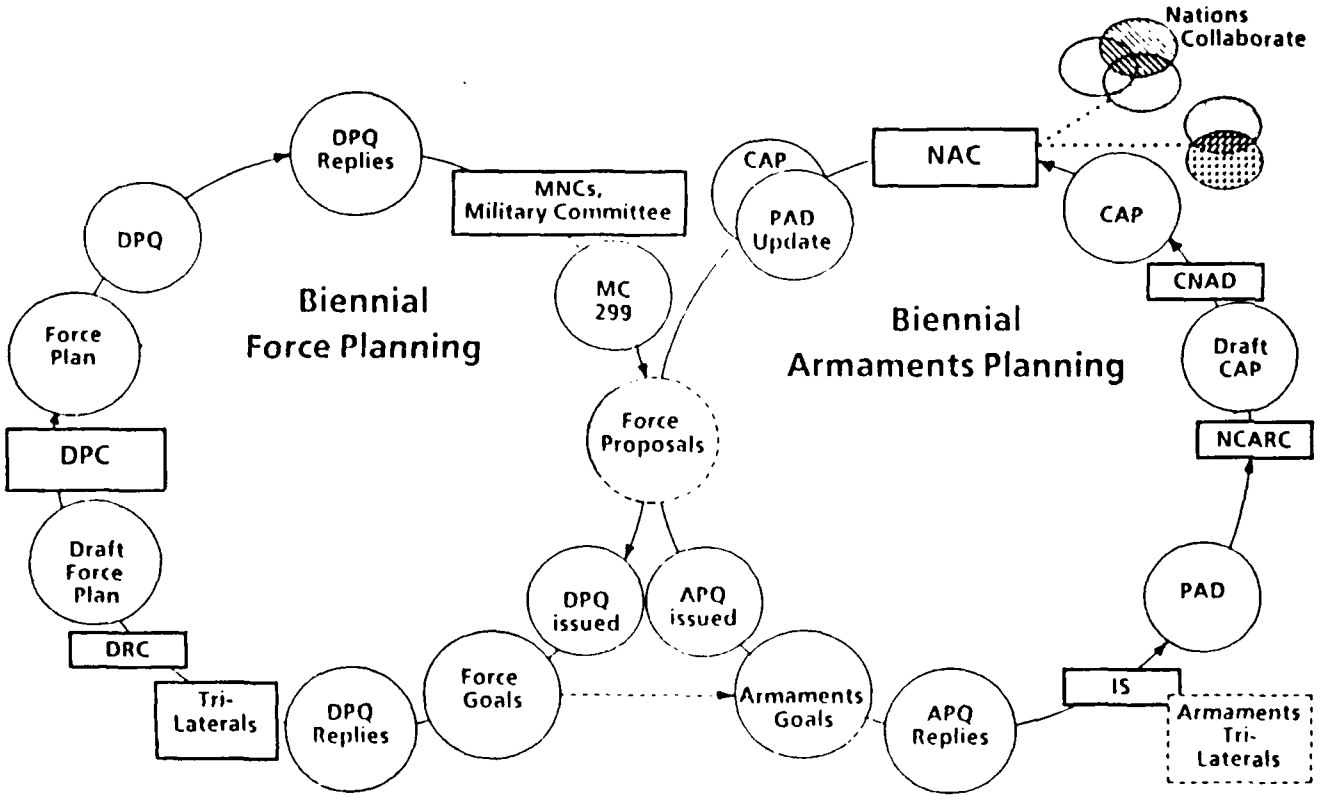
Conventional Armaments Planning System

The most recent initiative, an outgrowth of the CDI initiative, is the Conventional Armaments Planning System (CAPS) which is designed to foster armaments cooperation by providing a better linkage between force planning and armaments planning. The idea for CAPS is generally credited to former NATO Secretary General, Lord Carrington, who extensively promoted such a system. CAPS was approved in the December 1987 DPC meeting for a 2-year trial. The system essentially runs in parallel with the regular force planning process and goes through a similar review cycle (see Figure 3). The process is overseen by a new committee, the NATO Conventional Armaments Review Committee, that performs the same role and functions on behalf of the DPC as the DRC does with regard to force planning. The specific procedures are still evolving, but are similar to those established for the force planning process described earlier.

Summary and Prospects

The introduction of CMF and CAPS represents a significant effort to create a more systematic armaments and force planning process in NATO, with major potential to correct the shortcomings of the past. On the other hand, there are real limitations to what can be accomplished in NATO. The two root causes are *the lack of agreement on the military threat* and *the principle of national sovereignty.* The former causes nations to disagree on critical mission deficiencies when it comes to national defense planning. The latter causes national governments to consider Alliance-wide force and materiel requirements only if convenient and not in conflict with national plans and priorities. As a consequence, even though NATO has been outspending the Warsaw Pact every year in defense expenditures, it falls each year farther behind in conventional defense capabilities.

NATO needs to address those issues directly if the promise of the improved planning process, based on CMF and CAPS, is to be realized. Moreover, it must do so soon because the "burden sharing" debate can only become increasingly antagonistic and in due time tear NATO apart. Given the political will to continue the Alliance beyond its 40th anniversary, those problems can be solved. The best approach, probably, would be for the North Atlantic Council to authorize the Secretary General to establish a "committee of wise men" to come up with a politically acceptable solution. Ideas for a solution have been proffered by various individuals including



Note: APQ: Armaments Planning Questionnaire; CAP: Conventional Armaments Plan; DPQ: Defense Planning Questionnaire; IS: International Staff; PAD: Planning Analysis Document; MNCs: Major NATO Commanders; NCARC: NATO Conventional Armaments Review Committee.

FIG. 3. FORCE PLANNING AND ARMAMENTS PLANNING INTERACTION

disestablishing the Military Committee as presently constituted and transforming it into an advisory body to the DRC with no approval authority over the Major NATO Commanders; establishing SACEUR as the "first among equals" by double-hatting him as chairman of the combined commanders; making force goals and armaments goals, after political approval, firm requirements; improving intelligence sharing; and mission and role specialization (vice balanced armed forces), especially among the smaller NATO countries.[6]

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[6]An insightful account of NATO's "structural disarmament" caused by the lack of armaments cooperation can be found in a recent report by Thomas A. Callaghan, Jr., who also outlines the steps needed to embark on a new course by picking up on the idea of the "resources strategy" first enunciated by Ambassador Ab-hire, U.S. Permanent Representative to NATO from 1983 to 1987. Callaghan's report is entitled, *Pooling Allied and American Resources to Produce a Credible, Collective Conventional Deterrent.* It was prepared for the U.S. Department of Defense in Aug 1988.

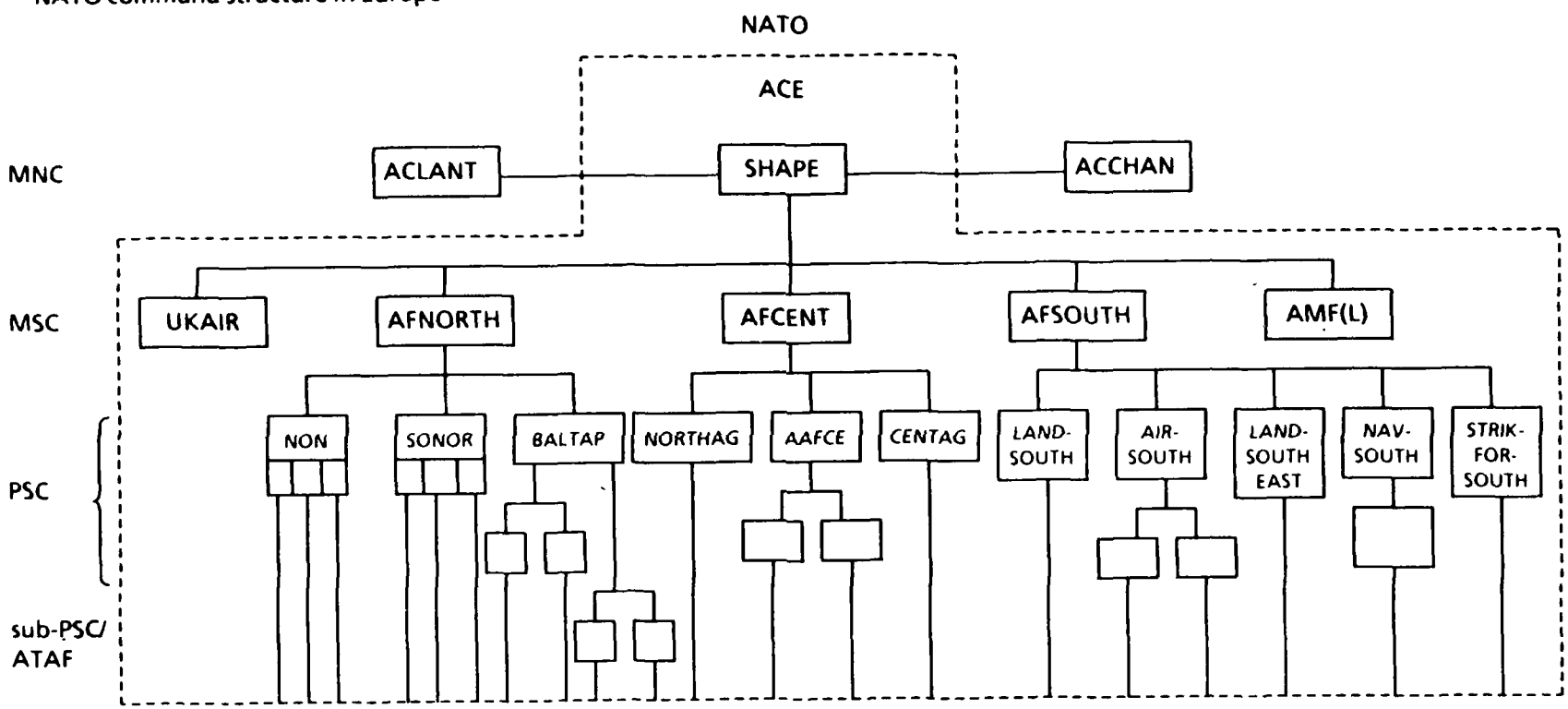
We now turn our attention to NATO's command and control structure in wartime, the ground maneuver forces that would be available, and their deployment and tactics for Forward Defense in the Central Region.

COMMAND AND CONTROL

NATO's transition to war will be a laborious process. Although SACEUR has the authority to declare "military vigilance," the lowest wartime readiness status (which would initiate preparations for planned dispersal of nuclear weapons), declarations of higher readiness and NATO mobilization (M-day) are formally subject to political consultations. Dissension by one or more countries could conceivably delay the process although nations individually might proceed with mobilization. Declaration of "simple alert," when national forces are placed under operational control of NATO Commanders, is an Alliance decision that formally requires consensus. Clearly peacetime conventions might not hold under the stress of wartime; therefore, we assume that SACEUR's standing orders are sufficiently broad to cover most contingencies. The next higher readiness conditions are "reinforced alert," when national corps have completed their deployment to General Defense Plan positions, and "general alert."

NATO's wartime command-and-control structure is illustrated in Figure 4. NATO's counterpart to the Soviet Commander-in-Chief (CINC) Western TVD (essentially a theater of operations) is the CINC Allied Forces Central Europe (AFCENT), or CINCENT, but his authority is limited in comparison to his Soviet counterpart. Apart from the difference in peacetime authority, the key difference in wartime is that CINCENT does not possess full command: logistics is primarily a national responsibility by NATO policy. CINCENT, a German general with headquarters at Brunssum, The Netherlands, has operational command of land and air forces in the Central Region. He has the authority to assign missions, deploy units, reassign forces, and delegate these functions as necessary, but he has no command and control of logistics support. His principal subordinate commanders are the two army group commanders, Northern Army Group (NORTHAG) and Central Army Group (CENTAG), and Commander Allied Air Forces Central Europe (AAFCE). Commander NORTHAG (in peacetime the Commander, British Army of the Rhine) and Commander CENTAG (in peacetime CINC, U.S. Army, Europe) exercise operational control of assigned ground forces in the northern and southern sector of the FRG (see demarcation line in Figure 5). Again, by NATO policy,

NATO command structure in Europe



Note: MNC: Major NATO Commands; MSC: Major Subordinate Commands; PSC: Principal Subordinate Commands; ATAF: Allied Tactical Air Forces; ACLANT: Allied Command Atlantic; SHAPE: Supreme Headquarters Allied Powers Europe; ACCHAN: Allied Command Channel; UKAIR: United Kingdom Air Command Region; AFSOUTH: Allied Forces Southern Europe; AMF(L): ACE Mobile Force (Land); NON: Commander Allied Forces North Norway; SONOR: Commander Allied Forces South Norway.

FIG. 4. NATO WARTIME COMMAND STRUCTURE: ALLIED COMMAND EUROPE (ACE)

Source: William P. Mako, *U.S. Ground Forces and the Defense of Central Europe* (Washington: Brookings Institution, 1983), p. 33

FIG. 5. NATIONAL CORPS SECTORS IN NATO CENTRAL REGION

operational control is limited by time or circumstances and does not include authority to task components of the units assigned (which is a command prerogative) unless that authority has been delegated. The Commander AAFCE exercises operational control of all air power in the Central Region which is organized into two air forces, 2nd Allied Tactical Air Force (ATAF) and 4th ATAF, with the boundary between the two regions coinciding with the NORTHAG–CENTAG demarcation. NATO, thus, separates operational command, operational control, and logistics command and control, which the United States traditionally combines under a single command.

LAND FORCES

The ground maneuver forces that may be available to AFCENT in wartime until NATO M+28 days are summarized in Table 1. For comparison with Warsaw Pact forces, the table includes forces for the defense of Denmark that are under operational command of Allied Forces Northern Europe (AFNORTH), under operational control of the Commander Allied Forces Baltic Approaches (BALTAP) and his subordinate commanders, Allied Land Forces Zealand and Allied Land Forces Schleswig-Holstein and Jutland (LANDJUT). The table, based on optimistic assumptions, shows the maximum ground forces in AFCENT. For example, France is assumed to participate fully in NATO's defense; and the United States is assumed to mobilize early so it can meet its commitment by NATO M+10 days. The national forces exhibit a wide variety of unit manpower strength, equipment, and training so that all data in terms of divisions and brigades are obviously approximate. For a rough comparison, however, in terms of firepower, a Soviet or East German division can be equated to 0.9 of a U.S. heavy division; a UK or French division (after the latter's restructuring) to 0.5; and other European divisions to 0.7; but this estimate probably overstates the combat potential of a Danish division and understates that of FRG and UK units.[7] What Table 1 also shows is the effect of mobilization on available forces: the maneuver force in AFCENT would increase from the approximately 24 divisions in place in the FRG at M-day to 51 divisions at M+28 under the assumptions indicated. Furthermore, the various territorial forces shown at the

[7]Various methodologies exist for comparing different units in terms of firepower. The most popular is documented in U.S. Army Concepts Analysis Agency, *Weapon Effectiveness Indices/ Weighted Unit Values III*, Washington, D.C.: Department of the Army, Nov 1979. We question the validity of firepower computations (for assessing combat power in maneuver warfare) and consequently do not attempt to quantify in this study. Moreover, historical studies have shown there is no correlation between firepower and battlefield success: the imponderables (e.g., leadership, training, tactics) overwhelm any quantitative indices.

TABLE 1

NATO GROUND MANEUVER FORCES (AFCENT)

Sector/nationality	In-position active units			Committed reserve or active reinforcements			Ready reserves (<M + 28)		Total Div. equivalent
	Armor div.	Other div.	Brigade	Armor div.	Other div.	Brigade	Div.	Brigade	
LANDJUT Zealand									6
British				–	–	1			⅓
Danish	–	⅓	2 × ⅓	–	⅓	2 × ⅓	–	6	3⅓
German[a]	–	1	–					2	1⅓
U S[b]				–	–	1			⅓
NORTHAG									19⅔
Belgian	–	2/3	–	–	1⅓	–	–	2	2⅓
British	3		1			2		2	4⅓
Dutch	–	⅓	–	–	1⅓	–	1	1	3⅓
German[a]	3	1	1				–	4	5⅓
U S	⅓	–	–	⅓	2	1			3⅓
CENTAG									26
Canadian	–	–	1	–	–	–	–	2	1
French[c]	3	–	–	3	2	2	1	–	9⅓
German[a]	3	3	2				–	6	8⅓
U S	2	2⅓	2	–	1⅓	–			6⅓
AFCENT Operational Reserve									5⅓
U S[d]					1	1		3	2⅓
Non-U S					3(FR)				3
Total force	14⅓	9	8⅓	3⅓	13	8⅓	2	28	57

Territorial Defense (under national, not NATO command)		Approximate Strength
Belgium	11 infantry regiments, 6 infantry battalions	65,000
Denmark	8 infantry battalions and 550 companies	72,500
France	1 division, 7 brigades, 6 infantry regiments, 23 battalions	80,000
Germany	15 regiments, 45 battalions, 150 companies, 300 platoons	90,000
The Netherlands	3 infantry brigades	15,000

Notes: Table includes forces located in or destined for Denmark's defense that formally fall under AFNORTH Command. It excludes forces located in Berlin that are deemed undeployable.

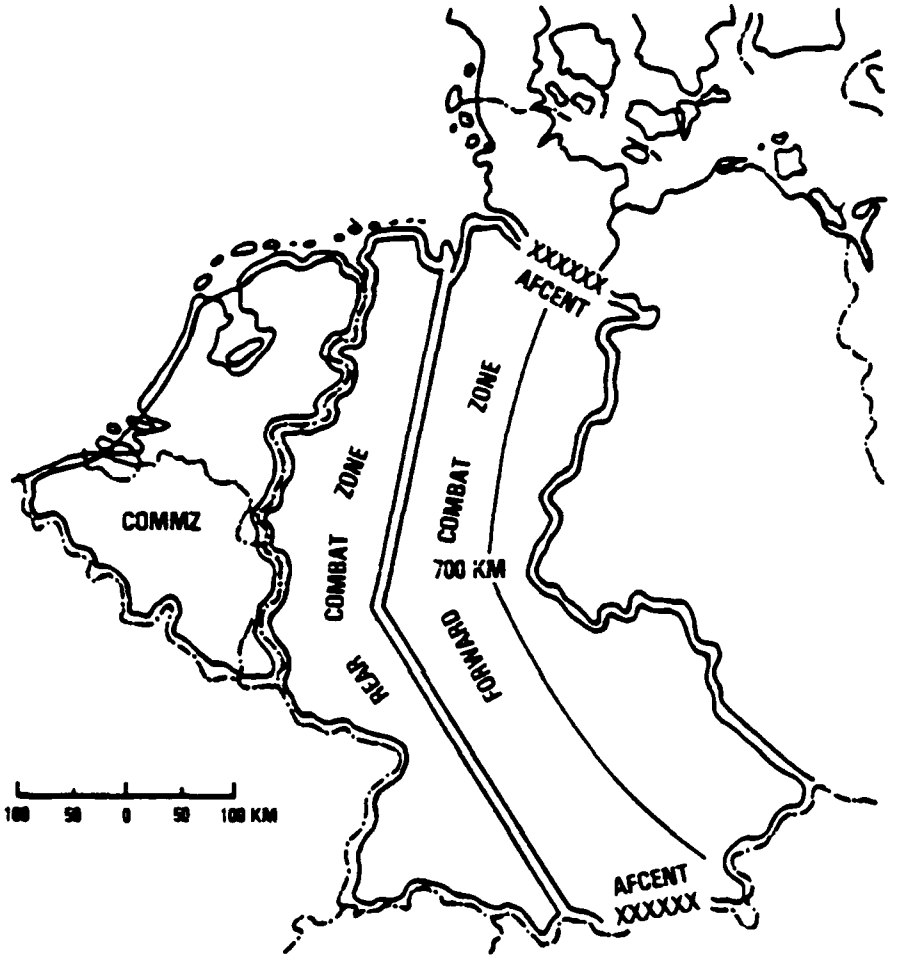
[a] German Army comprises Field Army (largely active) and Territorial Army (largely reserve). The latter includes 10 Home Defense Brigades that are equivalent in combat power to regular maneuver brigades; only 2 of those are currently assigned to NATO. We assume further buildup as planned to 12 brigades, with all assigned to forward defense, while the smaller organized units of Territorial Army would remain under national command for rear-area security (bottom of table).

[b] We assume a Marine Expeditionary Brigade could be assigned to reinforce LANDJUT.

[c] Though France does not take part in NATO's integrated military command, we assume France would contribute the entire 1st (French) Army to NATO forward defense and part of its Force d'Action Rapide to AFCENT as operational reserve.

[d] We assume the U S. commitment to NATO (10 divisions in theater by M + 10) stands, with pre-positioning of materiel configured to unit sets (POMCUS) in place and sufficient airlift to honor that commitment. We also assume maximum airlift/sealift capacity for non-POMCUS divisions is limited to 2⅓ division in 28 days.

bottom of the table would be mobilized to provide security in the rear combat zone and the communications zone (see Figure 6).



Source: David S Yost, *France and Conventional Defense in Central Europe* (Boulder: Westview Press, 1985), p. 54.

Note: COMMZ: Communications Zone.

FIG. 6. ZONES IN THE CENTRAL REGION

NATO defense plans count on available mobilization time of at least 10 days prior to a Soviet offensive. Some of the standing forces positioned in Europe will need 2 to 4 days to reach their General Defense Plan positions, either by rail or road-march, because their peacetime deployments are distant. Although plans call for the Forward Defense structure being in place at M+4 days, ground forces will need an additional 7 to 10 days to be fully prepared for an attack; during that time they will fortify defense positions and establish a support base of materiel stocks and supply

points to the rear in their corps support area. A more serious problem – and the key weakness of the Forward Defense concept – is that even after 10 days mobilization, no operational reserves will be available to NATO Commanders to reinforce sectors threatened by a Warsaw Pact breakthrough; the entire AFCENT M+10 day force, comprising approximately 33 division equivalents, will be committed forward. Clearly, an urgent need for innovative change exists because without an operational reserve at D-day, Forward Defense is bound to fail. That operational reserve is much more important than stationing additional active forces in the FRG for Forward Defense, as some critics advocate, because there is simply not enough space to deploy them effectively. As Alastair Buchan, founder of International Institute for Strategic Studies, observed a long time ago: "The German frontier may be too long to be effectively defended by 26 or even 30 divisions, but Germany itself is too small to hold any more."

TACTICAL DOCTRINE AND FORCE CAPABILITIES

NATO's tactical doctrine for the execution of Forward Defense was standardized in 1976 on the U.S. Army model of "Active Defense." It remains NATO tactical doctrine today. Active Defense is not a radically new tactical concept but a combination of established tactics and their application at a low level of organization. It consists essentially of a sequence of three operations. First, it employs a heavy *covering force* deployed forward of the main defense line to buy time, slow down the enemy's rate of advance through harassment without decisive engagement, sense the direction of the main thrust, and prevent the enemy from executing a rapid, preplanned breakthrough. Second, as covering force units withdraw through the main defense line, it employs *defense in sector*. That doctrine consists of modified area defense tactics based on battalion-level strongholds and terrain preparations throughout the tactical depth of the Forward Defense with sufficient density of fire to preclude gaps and enemy infiltrations yet with adequate elasticity for intrasector maneuver, intersector reinforcement, or withdrawal before a massed breakthrough by enemy formations. Third, as the enemy's offensive loses its momentum, with lead echelons suffering cumulative attrition from successive fire pockets and becoming disorganized, the defense seizes the opportunity for *counterattack* which can be launched either head-on (to reestablish the defense sector), or against the enemy's flank (to defeat or disrupt the first echelon) or, if a sufficiently powerful mobile reserve is available, against the shoulder of the enemy's

penetration (to envelop and annihilate the first-echelon force before the second echelon arrives). Active Defense thus combines positional defense, mobile defense, and area defense tactics. Its initial emphasis is on attrition warfare, and then it shifts to maneuver-oriented warfare to disrupt the offensive. Even though Active Defense is the standard doctrine, the way it is implemented and would be executed in wartime varies among the national corps in AFCENT, with national tradition, equipment, and training the deciding factors.

AFCENT, as indicated previously (Figure 5), is composed of eight national corps sectors, constituting the NATO "layer cake" arranged along the inner-German and Czechoslovakian border. The length of that border, from Lübeck on the Baltic to Austria, is approximately 1,100 km. The AFCENT frontage from the Elbe River to the Austrian border is approximately 725 km. The exact boundaries of each corps in wartime are classified, but neighboring corps overlap considerably to preclude the straight seams that could be exploited by the enemy for virtually unopposed infiltration. For illustrative purposes, however, we stay with the layer cake image because each corps would primarily fight its own battles. The tactical doctrines of the national corps are summarized in Figure 7 and briefly reviewed next.[8]

NORTHAG's combat zone has a frontage of approximately 225 km. The terrain in the northern half is flat; that in the southern half is steadily rising highlands with wooded medium mountains and hills in the forward zone, sloping down to a plain that begins west of the Paderborn-Osnabrück line and north of the Dortmund-Paderborn line. Numerous rivers and canals provide natural barriers to a rapid offensive. The North German Plain includes heavily urbanized areas (Hamburg and Bremen to the north, and the Hanover-Brunswick strip to the south), moorlands in the south, and intensively cultivated agricultural land in the north. The four national corps deployed for NORTHAG's forward defense are I Netherlands (NL) Corps, I German (GE) Corps, I British (UK) Corps, and I Belgian (BE) Corps.

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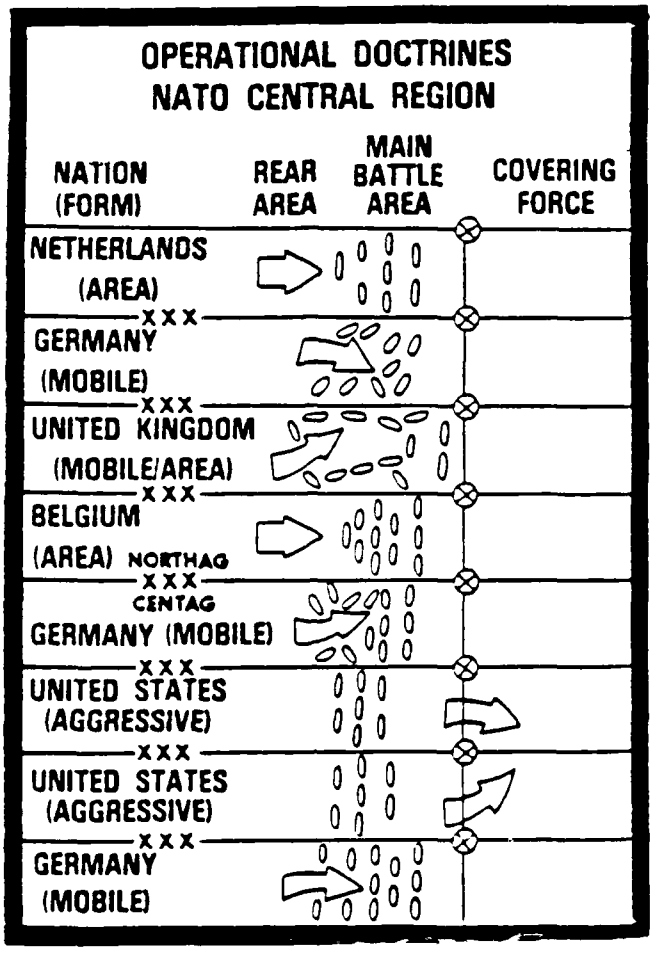
[8]This review is based on several sources: Phillip A. Karber, "In Defense of Forward Defense," and Dago A. Ruiz Palmer, "National Contributions," *Armed Forces Journal International*, May 1984, pp. 27–77; Anthony H. Cordesman, "The NATO Central Region and the Balance of Uncertainty," *Armed Forces Journal International*, Jul 1983, pp. 18–58; John J. Mearsheimer, *Conventional Deterrence* (Ithaca, N.Y.: Cornell University Press, 1983); and Philipp Borinski, (Lt. FRG Army Reserve), "Another Look at USAREUR Deployment," *Military Review*, Mar 1987, pp. 48–61.



Source: James R. Golden, et al. *Conventional Deterrence* (Lexington, Mass., Lexington Books, 1984), p. 144.

FIG. 7. NATIONAL TACTICAL DOCTRINES

The I (NL) Corps area is limited to the southern outskirts of Hamburg and northern part of the Lüneburger Heath, with total frontage of approximately 30 km. It has one reinforced armored brigade forward deployed in peacetime. The remainder of its two active divisions (one armored and two mechanized brigades each) is located in The Netherlands, but can be deployed forward by rail in 48 hours after alert. The balance of the I (NL) Corps is in reserve status and can be rapidly mobilized; it comprises one division, one independent infantry brigade, and much of the corps artillery. Reportedly, those reserve forces can be deployed forward in 96 hours after mobilization, with I (NL) Corps at full wartime strength of 10 brigades by M+5 days. The I (NL) Corps' equipment is modern, and its tactical doctrine is area defense with heavy reliance on artillery to stop penetrations. Its principal weakness is limited air defense. Given sufficient tactical warning, a rapid Warsaw

Pact breakthrough is improbable considering the available force density and the urbanized nature of part of this sector. The force density amounts to one brigade per 3 km frontline if deployed linearly; assuming that one brigade can defend a sector of 7 to 15 km (the standard U.S. planning factor), this force density permits deployment in tactical depth.

The I (GE) Corps area covers the access to the North German Plain, essentially a nonurbanized tank expressway – 100 km wide and 300 km deep – extending into The Netherlands, and generally viewed as a possible main axis of attack by the Warsaw Pact. Consequently, I (GE) Corps represents the heaviest concentration of force in any of AFCENT's sectors: three armored divisions and one mechanized division all at 75 percent combat readiness in peacetime; fully combat ready in 96 hours by mobilizing a reserve battalion in each brigade and the nondivisional elements in reserve status (portions of corps artillery and logistics support troops). This formation of seven armored brigades and five mechanized brigades is backed by an airborne brigade (active) and a home defense brigade (reserve). Modern equipment, high training standards, and a tactical doctrine of mobile defense make I (GE) Corps a potent force for defending a frontage of approximately 75 km, with one maneuver brigade per 6 km. The most significant terrain feature is the Elbeseitenkanal, a canal with a railroad next to it cutting straight through the plain's easternmost part and representing a formidable tank obstacle. Because the Soviets emphasize surprise and speed of advance, this sector is, in our opinion, the least likely axis of advance, given the entrenched Western notion of the North German Plain scenario; an airborne drop to the rear would be more likely than a ground advance.

The I (UK) Corps area straddles Hanover, a major urban area, and contains hilly and wooded terrain in the south, with a total frontage of approximately 85 km. I (UK) Corps consists of three armored divisions (one with two brigades, and two with three brigades) and one artillery division deployed in the FRG in peacetime; one infantry division stationed in the UK; and one infantry brigade dual-based with its manpower in the UK and its equipment pre-positioned in the FRG. Mobilization and forward deployment of the infantry division (three brigades, two of which are reserve) would require at least 7 days; its mission would be rear area security in the UK corps sector. The dual-based infantry brigade could be deployed rapidly by airlift. Thus, the available maneuver force is eight armored brigades and

one infantry brigade, for a force density of approximately one brigade per 10 km front. Much of its equipment is obsolete and undergoing a needed modernization program, but as the only European professional army not relying on the draft, the I (UK) Corps is rated highly. Its doctrinal concept is "aggressive delay," implemented through small antitank strongholds in depth with a counterattack force.

The I (BE) Corps area covers the remaining 35 km frontage in NORTHAG. The southern third of this area consists of the Harz mountains, while the remaining area is as hilly as the UK sector. This sector is the weakest in NORTHAG: I (BE) Corps consists of two mechanized divisions (comprising two active and one reserve brigade each) plus some reconnaissance and fire support battalions. In peacetime, one division is deployed in the FRG, with the remainder of the corps in Belgium. It is unlikely that I (BE) Corps could be brought to wartime strength and deployed to its warfighting positions in less than 7 days after NATO M-day. Even though force density would seem more than adequate for a credible defense (one brigade per 5 km front since the Harz mountains are an unlikely route for Warsaw Pact tank formations), much of the I (BE) Corps' equipment is obsolete, it lacks logistics support, and its readiness is poor as a result of severely limited training even by NATO standards. While the terrain in this sector is perhaps not the easiest in NORTHAG, the Soviets have a history of preferring difficult terrain over any other alternative, if it offers the advantages of a weak defense and surprise.[9] Thus, the most likely main thrust in NORTHAG is along the seam between the UK and Belgian sectors, or, if I (BE) Corps General Defense Plan position is behind I (UK) Corps, against the UK sector in the proximity of Goslar. Hitting NORTHAG with a slashing attack at that point could result in a rapid penetration that the neighboring corps, I (GE) Corps to the north and III (GE) Corps to the south, would find difficult to counter in time.

CENTAG's combat zone has a frontage of approximately 500 km to the Austrian border. Much of the terrain along this border is wooded and hilly; in the southeast corner, the Bavarian Forest is particularly inhospitable to a rapid advance by an attacking force. CENTAG includes the "waist" of the FRG, where the distance from the inner-German border to the Rhine River is only 150 km.

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[9]For a description of their famous operations into Manchuria, see David M. Glantz, *August Storm: The Soviet 1945 Strategic Offensive in Manchuria*, Leavenworth Papers No. 7, Ft. Leavenworth: Combat Studies Institute, U.S. Army Command and General Staff College, 1983.

The northernmost corps sector is defended by III (GE) Corps, with a frontage of approximately 80 km. The corps consists of two armored divisions [one of which is under operational control of VII (US) Corps], one mechanized division, one artillery brigade, and one airborne brigade. The armored divisions consist of two armored brigades and one mechanized brigade; the mechanized division consists of two mechanized brigades and one armored brigade. In peacetime, one of the four battalions in each maneuver brigade is on reserve status, but an active cadre maintains its equipment in ready condition. Further, as in all continental European armies, active personnel have a 40-hour work week schedule, so that readiness during weekends is limited. At mobilization, III (GE) Corps could be deployed at full wartime strength in 96 hours; it would be backed up by a Home Defense Brigade from the Territorial Army, thus providing the equivalent of seven maneuver brigades (plus one airborne brigade) or a density of one brigade per 11 km frontage. Using mobile tactics this force may be sufficient to hold the sector, but its use leaves little reserve to reinforce neighboring sectors. The Göttingen Corridor, traditionally perceived as a likely Soviet axis of advance, is located in this sector.

The next two corps sectors, V (US) Corps and VII (US) Corps, cover a frontage of approximately 90 km and 180 km, respectively, with the main features being the Fulda Gap, within the V (US) Corps sector, and Hof Corridor, within the VII (US) Corps sector, both of which are perceived in the west as likely axes of advance for a Warsaw Pact offensive. In peacetime, each of these corps has one armored division, one mechanized division, one separate mechanized brigade, and one armored cavalry regiment, amounting to eight brigade equivalents. Additionally, VII (US) Corps has operational control of one German armored division and Canadian Mobile Brigade in the rear, adding four brigade equivalents. Combat support elements include two artillery brigades in V (US) Corps and three in VII (US) Corps. To bring these corps to wartime strength, rapid reinforcement is planned, using units stationed in the CONUS with equipment pre-positioned in theater. That equipment, referred to as POMCUS (pre-positioning of materiel configured to unit sets), is stored in special warehouses: three sets in CENTAG's rear [for V (US) and VII (US) Corps], one set in NORTHAG's rear, and two sets in the Belgium-Netherlands-Luxembourg (Benelux) countries; the latter three sets are for III (US) Corps, the contingency corps earmarked for NORTHAG reinforcement or as AFCENT operational reserve. Two of the POMCUS sets are not yet filled and some equipment (such as helicopters) is not pre-positioned. In the transition period following M-day, reinforcing units would be

airlifted to 10 designated airports of debarkation, matched up with POMCUS equipment, and moved to tactical staging areas for deployment to their General Defense Plan positions. Most of the support needed in this process (transportation; maintenance; supply; military police; ammunition handling; medical services; and petroleum, oil, and lubricants) must be provided by host nation support, because U.S. Army, Europe's combat service support in-place is very thin. This process should result in a full U.S. complement of 10 division-equivalents in theater but not necessarily combat ready. The III (US) Corps will not be combat ready until needed support units arrive from CONUS and reinforcements for V (US) and VII (US) Corps require an elapsed time of 4 to 7 days between arrival of advance units at the aerial port of debarkation and combat readiness. At wartime strength, V (US) Corps has 1 armored and 2 mechanized divisions, 1 air cavalry regiment, 1 separate mechanized brigade, and 2 artillery brigades, amounting to a total of 11 maneuver brigades (counting the regiment as a brigade) or a force density of 1 brigade per 8 km. In comparison, VII (US) Corps is larger by one additional armor division (the 12th German Division), one additional air cavalry regiment, one additional independent brigade (the 4th Canadian Mobile Brigade), and two artillery brigades; furthermore, a German home defense brigade is committed to VII (US) Corps. The full wartime strength thus amounts to 17 maneuver brigades or a force density of roughly 1 brigade per 10 km. Modern equipment, high readiness, superior logistics support capabilities, and aggressive tactics characterize these two corps.

In the southernmost sector, II (GE) Corps, covers a frontage of approximately 150 km but has only one armored and two mechanized divisions (one of the latter divisions includes a mountain brigade vice a regular mechanized brigade), one airborne brigade, and limited artillery support. The peacetime active strength of the II (GE) Corps is two-thirds wartime manpower strength. In wartime, it will be reinforced with a mobilized home defense brigade, so the wartime strength will be 11 brigades, or a force density of 1 brigade per 14 km. That density may be sufficient considering the nearly impenetrable terrain in the Bavarian Forest, but it will be stretched too thin to counter a flanking attack along the Danube River valley through Austria. It appears that NATO is now recognizing this potential weakness. Exercise "Bold Sparrow 87," the first large joint maneuver of French and German ground forces, simulated the reinforcement of II (GE) Corps with an air mobile division and a mechanized division from the French Force d'Action Rapide to halt a "red force" attack trying to outflank the "blue force" from the south across a neutral

country. The exercise demonstrated the importance of a large airmobile unit in AFCENT for carrying out a swift strike; it also demonstrated the lack of firepower of the airmobile unit so that rapid reinforcement by more powerful ground mobile units is required, but the delays encountered in this exercise were longer than anticipated.

EPILOG

This volume has laid out NATO's basic military concepts and summarized the force structure for carrying out those concepts. In the following volume, we will examine the military concepts and force structure of NATO's potential battlefield foe, the Soviet Union and the Warsaw Pact nations.

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION / AVAILABILITY OF REPORT "A" Approved for public release; distribution unlimited.
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) LMI-IR702R2	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION Logistics Management Institute 6b. OFFICE SYMBOL *(If applicable)*	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS *(City, State, and ZIP Code)* 6400 Goldsboro Road Bethesda, Maryland 20817-5886	7b. ADDRESS *(City, State, and ZIP Code)*
8a. NAME OF FUNDING / SPONSORING ORGANIZATION OASD(P&L) 8b. OFFICE SYMBOL *(if applicable)*	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER MDA903-85-C-0139
8c. ADDRESS *(City, State, and ZIP Code)* The Pentagon, Room 3E808 Washington, DC 20301-8000	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO

11. TITLE *(Include Security Classification)*
Logistics Implications of Maneuver Warfare
Volume 2: NATO Defense Concepts and Capabilities

12. PERSONAL AUTHOR(S)
Frans Nauta

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT *(Year, Month, Day)*	15. PAGE COUNT
Final	FROM _____ TO _____	1988 September	50

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS *(Continue on reverse if necessary and identify by block number)*
FIELD	GROUP	SUB-GROUP	AirLand Battle, Maneuver Warfare, Logistics, NATO, Warsaw Pact, Conventional Defense, Arms Negotiations

19 ABSTRACT *(Continue on reverse if necessary and identify by block number)*

This report examines the logistics implications of AirLand Battle, a new maneuver-oriented operational concept being adopted by the U.S. Army. The examination discusses the application of AirLand Battle in the NATO environment, details the need for NATO to shift toward adopting such a concept, and identifies the specific logistics improvements that are required to assure its success.

Volume 1 sets the stage for examining AirLand Battle doctrine and lays out the focus and scope of the study.

Volume 2 reviews NATO's defense posture, including its operational concepts and capabilities.

Volume 3 describes the military command structure, operational concepts, and capabilities of the Soviet Union.

Volume 4 summarizes the various arms control negotiations that have taken place between East and West to solve peacefully NATO's security problem.

Volume 5 illustrates the need for NATO to adopt a maneuver-oriented defense posture if it is to maintain a credible conventional defense.

Volume 6 details the specific logistics improvements that are required to support maneuver defense in a NATO environment.

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION
22a. NAME OF RESPONSIBLE INDIVIDUAL	22b. TELEPHONE *(Include Area Code)* / 22c. OFFICE SYMBOL